

CLAIMS

1. An optical waveplate comprising polyethylene naphthalate.
2. The optical waveplate of claim 1 in the form of a film with a thickness in the range of 2 to about 25 μm .
3. The optical waveplate of claim 2 wherein the film is an uniaxially stretched film.
4. The optical waveplate of claim 2 wherein the film is a biaxially stretched film.
5. An optical device comprising
 - at least an optical waveguide having each at least two sections, and
 - a polyethylene naphthalate optical waveplate optically coupled between two sections of the waveguide to transmit a light signal between said two sections of the waveguide.
6. The optical device of claim 4 wherein the waveplate has a thickness in the range of 2 to about 25 μm .
7. The optical device of claim 4 wherein the waveguide defines an optical axis and the waveplate is disposed at an angle in the range $80-88^{\circ}$ to the optical axis of the waveguide.
8. The optical device of claim 4 wherein the waveguide is an arrayed waveguide grating.
9. The optical device comprising
 - a wafer,
 - a plurality of waveguides extending across the wafer,
 - a slot extending across the waveguides, and
 - a polyethylene naphthalate optical waveplate disposed in the slot and extending therealong so as to optically modify optical signals passing through the waveguides.